



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2020-0555; Project Identifier AD-2020-00615-E; Amendment 39-21267; AD 2020-20-11]**

**RIN 2120-AA64**

**Airworthiness Directives; General Electric Company Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain General Electric Company (GE) GEnx-1B64/P2, -1B67/P2, -1B70/P2, -1B70C/P2, -1B70/75/P2, -1B74/75/P2, -1B76/P2, -1B76A/P2, and GEnx-2B67/P model turbofan engines. This AD was prompted by the detection of melt-related freckles in the billet, which may reduce the life limits of certain high-pressure turbine (HPT) rotor stage 2 disks and a certain stages 6-10 compressor rotor spool. This AD requires the removal of certain HPT rotor stage 2 disk and the removal of a certain stages 6-10 compressor rotor spool before reaching their new life limits. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, contact General Electric Company, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: [aviation.fleetsupport@ae.ge.com](mailto:aviation.fleetsupport@ae.ge.com); website: [www.ge.com](http://www.ge.com). You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759. It is also available on the

internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0555.

### **Examining the AD Docket**

You may examine the AD docket on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0555; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Mehdi Lamnyi, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7743; fax: 781-238-7199; email: [Mehdi.Lamnyi@faa.gov](mailto:Mehdi.Lamnyi@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain GE GEnx-1B64/P2, -1B67/P2, -1B70/P2, -1B70C/P2, -1B70/75/P2, -1B74/75/P2, -1B76/P2, -1B76A/P2, and GEnx-2B67/P model turbofan engines. The NPRM published in the Federal Register on June 8, 2020 (85 FR 35021). The NPRM was prompted by the detection of melt-related freckles in the billet, which may reduce the life limits of certain HPT rotor stage 2 disks and a certain stages 6-10 compressor rotor spool. The NPRM proposed to require the removal of certain HPT rotor stage 2 disk and the removal of a certain stages 6-10 compressor rotor spool before reaching their new life limits. The FAA is issuing this AD to address the unsafe condition on these products.

## **Comments**

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

### **Request to List Part and Serial Numbers**

GE requested that both the affected part and serial numbers be listed in the Applicability section of this AD instead of the affected engine serial numbers.

The FAA agrees. The FAA recognizes that affected HPT rotor stage 2 disks could be moved from one engine to another engine. The intent of this AD is to mandate the removal of the affected parts from service, regardless of the engine on which they are installed. The FAA is revising the Applicability section of this AD as suggested by the commenter. This change does not expand the scope of this AD because the number of affected engines installed on airplanes of U.S. registry remains the same in this final rule compared to what was published in the NPRM.

### **Support for the AD**

The Air Line Pilots Association, International; the Boeing Company; and United Airlines Engineering expressed support for the AD as written.

## **Conclusion**

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule with the changes described previously and minor editorial changes. The FAA has determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

The FAA also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

#### **Related Service Information**

The FAA reviewed GE GENx-1B Service Bulletin (SB) 72-0473 R00, dated April 14, 2020; GE GENx-1B SB 72-0474 R00, dated April 14, 2020; and GE GENx-2B SB 72-0416 R00, dated April 14, 2020. GE GENx-1B SB 72-0473 R00 describes procedures for removing and replacing the HPT rotor stage 2 disks on GE GENx-1B model engines. GE GENx-1B SB 72-0474 R00 describes procedures for removing and replacing the stages 6-10 compressor rotor spool on GE GENx-1B model engines. GE GENx-2B SB 72-0416 R00 describes procedures for removing and replacing the HPT rotor stage 2 disks on GE GENx-2B model engines.

#### **Costs of Compliance**

The FAA estimates that this AD affects two engines installed on airplanes of U.S. registry; one engine requires the HPT rotor stage 2 disk replacement and one engine requires the stages 6-10 compressor rotor spool replacement.

The FAA estimates the following costs to comply with this AD:

#### **Estimated costs**

<b>Action</b>	<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Removal and replacement of the HPT rotor stage 2 disk	1,500 work-hours x \$85 per hour = \$127,500	\$458,900	\$586,400	\$586,400
Removal and replacement of the stages 6-10 compressor rotor spool	600 work-hours x \$85 per hour = \$51,000	\$1,018,600	\$1,069,600	\$1,069,600

#### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator.

Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **The Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

2020-20-11 **General Electric Company**: Amendment 39-21267; Docket No. FAA-2020-0555; Project Identifier AD-2020-00615-E.

#### **(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

None.

#### **(c) Applicability**

This AD applies to all General Electric Company (GE) GEnx-1B64/P2, -1B67/P2, -1B70/P2, -1B70C/P2, -1B70/75/P2, -1B74/75/P2, -1B76/P2, -1B76A/P2, and GEnx-2B67/P model turbofan engines with :

(1) a high-pressure turbine (HPT) rotor stage 2 disk, part number (P/N) 2383M86P02, having one of the following serial numbers (S/Ns): TMT18D6T, TMT18D6U, TMT18JC4, TMT18NGC, TMT1985C, TMT3UA34, TMT3UA55, TMT4CT46, or TMT4CT47, installed; or

(2) a stages 6-10 compressor rotor spool, P/N 2628M56G01, S/N GWN10ECM, installed.

#### **(d) Subject**

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

#### **(e) Unsafe Condition**

This AD was prompted by the detection of melt-related freckles in the billet, which may reduce the life limits of certain HPT rotor stage 2 disks and a certain stages 6-10 compressor rotor spool. The FAA is issuing this AD to prevent failure of the HPT rotor stage 2 disk and stages 6-10 compressor rotor spool. The unsafe condition, if not

addressed, could result in uncontained release of both the HPT rotor stage 2 disk and the stages 6-10 compressor rotor spool, damage to the engine, and damage to the aircraft.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Required Actions**

After the effective date of this AD, before the parts accumulate the cycles since new (CSN) threshold listed in Table 1 to paragraph (g) of this AD, remove the affected HPT rotor stage 2 disk and the stages 6-10 compressor rotor spool from service and replace with parts eligible for installation.

**Table 1 to Paragraph (g) – Affected Parts and CSN Threshold**

<b>Part Name</b>	<b>Part P/N</b>	<b>Part S/N</b>	<b>CSN Threshold</b>
HPT rotor stage 2 disk	2383M86P02	TMT18D6T	1,000
HPT rotor stage 2 disk	2383M86P02	TMT18D6U	1,000
HPT rotor stage 2 disk	2383M86P02	TMT18JC4	1,000
HPT rotor stage 2 disk	2383M86P02	TMT18NGC	1,000
HPT rotor stage 2 disk	2383M86P02	TMT1985C	1,000
HPT rotor stage 2 disk	2383M86P02	TMT3UA34	2,800
HPT rotor stage 2 disk	2383M86P02	TMT3UA55	2,800
HPT rotor stage 2 disk	2383M86P02	TMT4CT46	2,000
HPT rotor stage 2 disk	2383M86P02	TMT4CT47	2,000
Stages 6-10 compressor rotor spool	2628M56G01	GWN10ECM	6,500

**(h) Installation Prohibition**

After the effective date of this AD, do not install the affected HPT rotor stage 2 disks or the stages 6-10 compressor rotor spool identified in Table 1 to paragraph (g) of this AD on an engine.

**(i) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j) of this AD. You may email your request to: *ANE-AD-AMOC@faa.gov*.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(j) Related Information**

For more information about this AD, contact Mehdi Lamnyi, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7743; fax: 781-238-7199; email: *Mehdi.Lamnyi@faa.gov*.

**(k) Material Incorporated by Reference**

None.

Issued on September 24, 2020.

Lance T. Gant, Director,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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